FEMA Comments on WEA Geo-targeting

Regarding the Matter of	)	
	)	
Improving Wireless Emergency Alerts and Community-Initiated Alerting	)	PS Docket No. 15-91
	)	
	)	

Following a review of comments presented to date along with the Department of Homeland Security (DHS) Science and Technology Directorate (S&T), "*Wireless Emergency Alerts, Arbitrary Location-Aware Targeting Final Report*", June 2015, FEMA is considering providing alerting authorities and Common Alerting Protocol (CAP) authoring tool providers with further recommendations regarding the creation and presentation geo-targeting polygon data.

At the present time the IPAWS platform will only accept targeting polygons with up to 100 vertices in accordance with the *Joint ATIS/TIA CMAS Federal Alert Gateway to CMSP Gateway Interface Specification* (J-STD-101). Any Wireless Emergency Alert (WEA) message submitted containing a geo-targeting polygon drawn with more than 100 vertices is returned to the submitter with a "607 invalid-value-in-element-polygon" error code.

FEMA continues to work with local and state alerting authorities and their selected CAP alerting tool software providers to encourage the use of the most basic polygon; that is a polygon with the fewest vertices; which will properly describe the intended target area.

FEMA is also encouraging discipline with regard to specified vertex coordinate precision. For purposes of geo-targeting alert messages, there is little need for coordinate precision beyond the fourth decimal point of degree. This equates to approximately 11 meters, or the width of a street. FEMA does not view this as a conflict with current efforts to enable WEA driven device-based geo-targeting with one-tenth mile accuracy. The proposed four decimal point precision is sufficient to support block by block targeting descriptions in urban areas to serve existing and future IPAWS dissemination pathways other than EAS or WEA.

If coordinate precision were limited to three decimal points of a degree the resulting vertices for polygons describing a block by block targeted urban area may snap to points other than street intersections resulting in map plots that appear to have been crafted in haste or error. (See Figure 1 for an illustration of input precision versus delivery accuracy.)

Figure 1

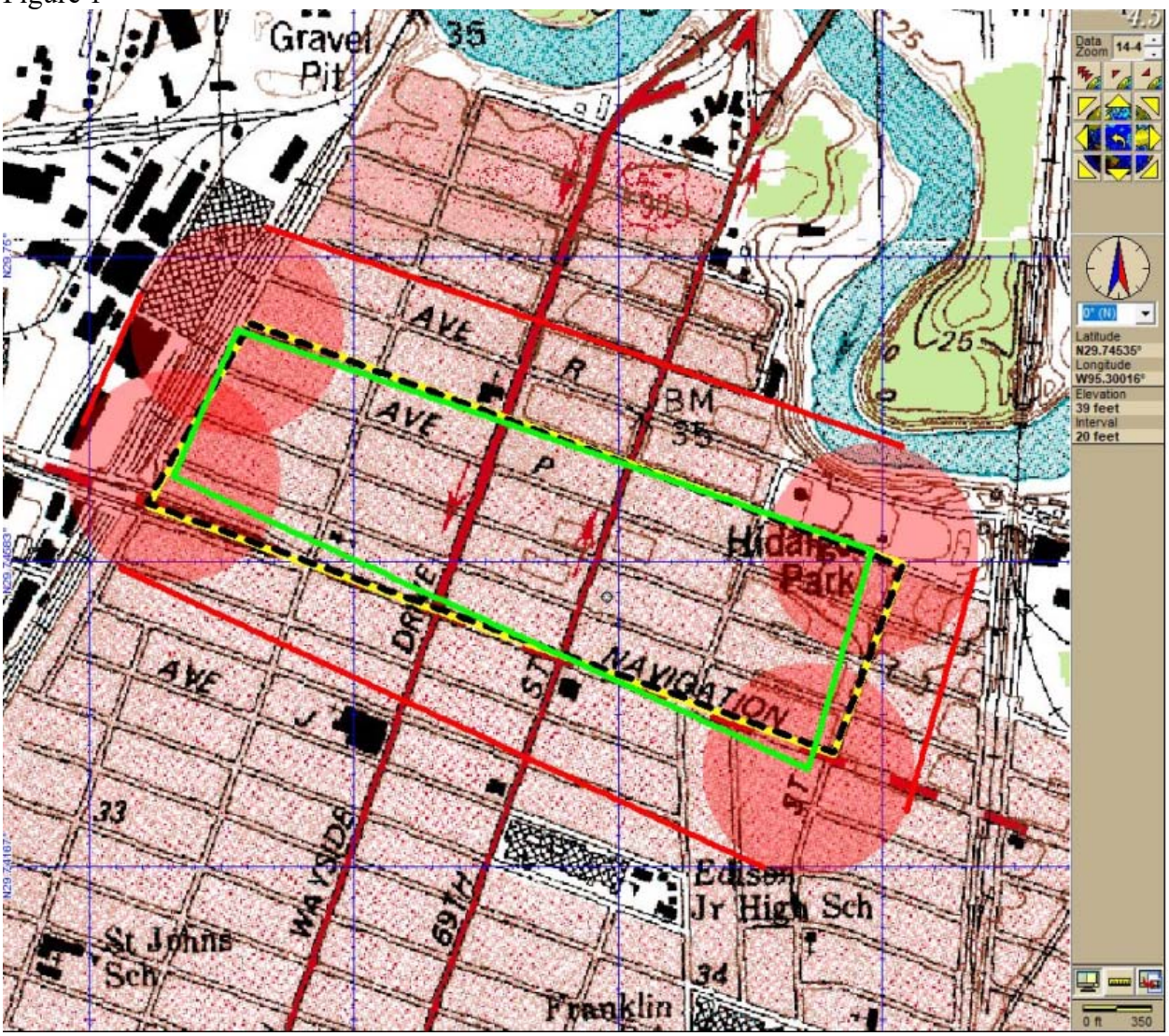

Figure 1 depicts a targeted 20 block residential area near the Houston Ship Channel. The Black dotted line polygon was drawn to the centers of the street intersections (original accuracy). The Yellow polygon is drawn with the vertices rounded to four decimal place degree reduced precision. The Green polygon is drawn with vertices rounded to three decimal place degree reduced precision. Note that three corners of the Green polygon appear to have been selected in a haphazard fashion.

Four Red circles, one-tenth of a mile in radius, were drawn centered on the vertices of the Green three decimal place degree polygon to illustrate the accuracy range of the proposed one-tenth mile handset based geo-targeting.

Reducing the number of vertices and controlling coordinate precision may allow faster polygon processing in IPAWS OPEN and downstream geo-targeting solutions which may eventually include hand held wireless devices.

Respectfully submitted on behalf of the FEMA IPAWS Program Office.

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